

## **REGULATION III - CONTROL OF AIR CONTAMINANTS**

### **RULE 343 COMMERCIAL BREAD BAKERIES**

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**MARICOPA COUNTY  
AIR POLLUTION CONTROL REGULATIONS**

**REGULATION III - CONTROL OF AIR CONTAMINANTS**

**RULE 343  
COMMERCIAL BREAD BAKERIES**

**SECTION 100 - GENERAL**

- 101 PURPOSE:** To limit the emission of volatile organic compounds (VOCs) from bread ovens at commercial bread bakeries.
- 102 APPLICABILITY:** The provisions of this rule shall apply only to commercial bread bakeries whose total VOC emissions exceed 25 tons per year after December 31, 1989. This rule shall not apply to any facility or equipment used exclusively for the production of bakery products leavened chemically in the absence of yeast.

**SECTION 200 - DEFINITIONS:** For the purpose of this rule, the following definitions shall apply:

- 201 AFFECTED FACILITY -** With reference to a stationary source, any apparatus to which a standard is applicable.
- 202 APPROVED EMISSION CONTROL SYSTEM -** A system for reducing emissions of organic compounds, consisting of both collection and control devices which are approved in writing by the Control Officer and are designed and operated in accordance with good engineering practice.
- 203 AVERAGE DAILY EMISSIONS -** The product of the total calendar year emissions divided by the number of days the oven was employed for production during that year.
- 204 BASE YEAR -** The calendar year 1990 or any subsequent calendar year in which the average daily emissions equal or exceed 192 lbs. or more per day.
- 205 BREAD -** A perishable foodstuff prepared from yeast-leavened dough whose primary ingredients are flour, water, and yeast which is baked into loaves, buns, or rolls.

- 206 CONTROL PLAN** - A written report describing the method to be used to achieve full compliance. The control plan shall, at a minimum, contain all information required in Section 402 of this rule.
- 207 EXISTING OVEN** - Any oven which was installed before May 1, 1995.
- 208 LEAVEN** - To raise a dough by causing gas to thoroughly permeate it through the use of a fermentation-producing agent such as yeast or baking powder.
- 209 NEW OVEN** - Any oven which was installed on or after May 1, 1995.
- 210 OVEN** - A chamber used to bake by means of heat, typically from the combustion of natural gas or propane. This does not include proof boxes.
- 211 PROOF BOXES** - A warm, typically 100° Fahrenheit, humid chamber where yeast-leavened dough is allowed to rise to the volume desired for baking.
- 212 VOLATILE ORGANIC COMPOUND (VOC)** - Any organic compound, excluding the following organic compounds which have been designated by the EPA as having negligible photochemical reactivity: methane; ethane; methylene chloride (dichloromethane); 1,1,1-trichloroethane; trichlorofluoromethane (CFC-11); dichlorodifluoromethane (CFC-12); chlorodifluoromethane (CFC-22); 1,1,2-trichlorotrifluoroethane (CFC-113); 1,2-dichlorotetrafluoro ethane (CFC-114); chloropentafluoroethane (CFC-115); trifluoromethane (CFC-23); 2,2-dichloro-1,1,1-trifluoroethane (HCFC-123); 2-chloro-1,1,1,2-tetrafluoroethane (HCFC-124); 1,1-dichloro-1-fluoroethane (HCFC-141b); 1-chloro-1,1-difluoroethane (HCFC-142b); pentafluoroethane (HFC-125); 1,1,2,2-tetrafluoroethane (HFC-134); 1,1,1,2-tetrafluoroethane (HFC-134a); 1,1,1-trifluoroethane (HFC-143a); 1,1-difluoroethane (HFC-152a); parachlorobenzotrifluoride (PCBTF); cyclic, branched, or linear completely methylated siloxanes; all completely fluorinated, completely saturated: alkanes, ethers and tertiary amines; sulfur-containing perfluorocarbons with no unsaturations, no hydrogen, and with sulfur bonds only to carbon and fluorine.

**Note<sup>1</sup>**

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<sup>1</sup> This note is not part of Rule 343, but is included for the reader's convenience. The current list of exempt organic compounds is in Rule 100, Section 200, in the definition of Non-Precursor Organic Compound.

## SECTION 300 - STANDARDS

**301 LIMITATIONS - EXISTING BAKERY OVENS:** On or after November 15, 1995, no person shall use an existing oven, with annual VOC emissions of 25 tons and/or a base year average daily VOC emissions of greater than 192 lbs., unless the VOC emissions from the oven are reduced by at least 81 percent. This may be accomplished through the use of an approved emission control device or bread-making and/or baking process changes.

**302 LIMITATIONS - NEW OR MODIFIED BAKERY OVENS:** No person shall operate a new or modified oven with potential, annual VOC emissions of 25 tons and/or average daily VOC emissions of 192 lbs., unless the VOC emissions from the oven are reduced by at least 81 percent. This may be accomplished through the use of an approved emission control device or bread-making and/or baking process changes. A person choosing to comply with this rule through the use of bakery process changes shall use a VOC E.F. value of 5.5 pounds per ton (Reference Figure 1.)

**Note<sup>2</sup>**

**303 OPERATION AND MAINTENANCE (O&M) PLAN:** The owners or operators of an approved emission control system used to meet the requirements of this rule shall provide the Control Officer with an O&M Plan. This Plan shall specify key system operating parameters, such as temperatures, pressures and/or flow rates, necessary to determine compliance with this rule and describe in detail procedures to maintain the approved emission control system. The Control Officer's written approval of this Plan and the implementation of this Plan shall be required for compliance with this rule to be achieved.

## SECTION 400 - ADMINISTRATIVE REQUIREMENTS

**Note<sup>3</sup>**

**401 COMPLIANCE SCHEDULE:**

**401.2** By May 1, 1995, any person subject to Section 301 shall submit for the Control Officer's approval an emission control plan describing the method to be used to achieve full compliance by November 15, 1995. The plan shall, at a minimum, include all information required in Section 402 of this rule. The Control Officer may require a person submitting such emission control plan to submit subsequent reports on progress in achieving compliance.

**402 INFORMATION REQUIRED TO BE INCLUDED IN AN EMISSION CONTROL PLAN:**

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<sup>2</sup> This note is not part of Rule 343, but is included for the reader's convenience. An "approved emission control device" is the same as an "approved emission control system" as defined in Section 202 of this rule. The abbreviation "E.F." means "emission factor".

<sup>3</sup> This note is not part of Rule 343, but is included for the reader's convenience. There is a formatting error: there is no subsection 401.1; subsection 401.2 should be simply Section 401.

- 402.1** Name(s), address(es), and phone number(s) of the owner of the bakery, of person(s) responsible for the preparation, submittal and implementation of the emission control plan and of person(s) responsible for the baking operations; and
- 402.2** Complete and accurate calculations of the bakery's base year total VOC emissions from each affected oven by following emissions inventory calculations provided by the equation in Figure 1; and
- 402.3** Complete and accurate calculations of the bakery's total VOC emissions from each affected oven after the proposed breadmaking and/or baking process changes found in the emission control plan. These calculations shall be done by following the emissions inventory estimation provided by the equation in Figure 1. The emission control plan shall demonstrate that the reduction in emissions is a result of the breadmaking and/or proposed baking process changes' effect on the variables in the equation in Figure 1; or
- 402.4** Complete and accurate calculations of the bakery's total VOC emissions from each affected oven based on the proposed emission control system described in the emission control plan. The emission control plan shall also specify dates for completing increments of progress, such as the contractual arrival date of new control equipment.
- 403 EFFECTIVE DATE:** The provisions of this rule shall become effective on May 1, 1995.

## **SECTION 500 - MONITORING AND RECORDS**

- 501 PROVIDING AND MAINTAINING MONITORING DEVICES:** Any person operating an approved emission control system pursuant to this rule shall properly install and maintain in calibration, in good working order and in operation, devices described in an approved O&M Plan for indicating temperatures, pressures, rates of flow, or other operating conditions necessary to determine if air pollution control equipment is functioning properly and is properly maintained.
- 502 RECORDKEEPING AND REPORTING:** Any person subject to this rule shall maintain records which comply with the following requirements. Any records required by this rule shall be kept in a legible, consistent and complete manner.
- 502.1** Records for operation and maintenance of an approved emission control system shall include a record of the times an approved emission control system is operating, daily records of the O&M Plan's key system operating parameters and a log of all maintenance performed according to the O&M Plan.

**502.2** Records for the institution shall include:

- a. Formula number;
- b. Initial baker's percent of yeast,  $Y_i$  (nearest one-tenth of a percent);
- c. Total ferment time (in hours, nearest one-tenth of an hour - begins with first mixing of yeast with the dough or sponge);
- d. Yeast spike as baker's percent of yeast (nearest one-tenth of a percent);
- e. Spike time (in hours, nearest one-tenth of an hour);
- f. Ethanol emission factor (lbs/ton);
- g. Daily records of production (tons) and corresponding formula;
- h. Quarterly records of ethanol emissions (tons).

**Note**<sup>4</sup>

**503 RECORDS RETENTION:** Copies of control plans, operation and maintenance records and any other documentation required by this rule shall be retained by the permittee for at least three years.

**504 COMPLIANCE DETERMINATION - TEST METHODS:** When more than one test method is permitted for a determination, an exceedance of the limits established in the rule determined by any of the applicable test methods constitutes a violation of this rule.

**504.1** Measurements of VOC emissions subject to Section 301 and 302 of this rule shall be conducted in accordance with EPA Methods 18 and/or 25 and/or its submethods (40 CFR 60, Appendix A).

**504.2** Ventilation/draft rates shall be determined by EPA Methods 2, 2a, 2c, and 2d.

Figure 1

$$\text{VOC E.F.} = .95Y_i + .195t_i - .51S - .86t_s + 1.90$$

where VOC E.F. = pounds of VOC per ton of baked bread

<sup>4</sup> This note is not part of Rule 343, but is included for the reader's convenience. Total ferment time ends at the time the bread enters the oven, as does spike time, also.

$Y_i$  = initial baker's percent of yeast to the nearest tenth of a percent

$t_i$  = total yeast action time in hours to the nearest tenth of an hour

$S$  = final (spike) baker's percent of yeast to the nearest tenth of a percent

$t_s$  = spiking time in hours to the nearest tenth of an hour

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